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Report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea

I. Introduction

1. The present report of the Secretary-General of the International Seabed Authority is submitted to the Assembly of the Authority under article 166, paragraph 4, of the 1982 United Nations Convention on the Law of the Sea ("the Convention"). It provides an account of the work of the Authority during the period from July 2002 to June 2003 as well as a discussion of current issues relevant to the work of the Authority and certain aspects of the anticipated future work programme of the Authority.

2. During the eighth session of the Authority in 2002, the Assembly took note of the increasingly technical emphasis in the substantive work of the Authority and commenced a debate on the implications that this might have for the future directions of the Authority as well as on its pattern of meetings. In particular, the Assembly took note of the important role of the Authority with respect to promoting and encouraging marine scientific research in the Area and endorsed the proposals made by the Secretary-General in his report for the promotion of international cooperation in research projects aimed at enhancing scientific knowledge of the deep ocean environment and its resources. In the light of the discussions that took place in the Assembly in 2002, the Secretary-General has given further consideration to the way in which the substantive work programme for the Authority might be developed to reflect current priorities and respond better to the needs of members. Section XII of the present report sets out in more detail some of the main elements of the future work programme for the Authority. The objective would be to enable the Secretary-General, in preparing his proposals for the administrative budget for the next two-year financial period (2005-2006), to develop a comprehensive three-year work programme for the Authority for consideration by the Assembly at its tenth session.

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II. Membership of the Authority

3. In accordance with article 156, paragraph 2, of the Convention, all States parties to the Convention are ipso facto members of the Authority. As of 30 May 2003, 141 States and the European Community were party to the Convention and members of the Authority.

4. In the debate on the report of the Secretary-General during the eighth session of the Authority in 2002, the Assembly reiterated its concern that there remained at that time 33 members of the Authority which had become States parties to the Convention prior to the adoption of the Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 ("the Agreement") and which had not yet completed the necessary procedural steps to become parties to the Agreement. The Agreement had been adopted on 28 July 1994 by the General Assembly of the United Nations in its resolution 48/263 and had entered into force on 28 July 1996. After the adoption of the Agreement, any instrument of ratification or formal confirmation of or accession to the Convention shall also represent consent to be bound by the Agreement. No State or entity may establish its consent to be bound by the Agreement unless it has previously established or establishes at the same time its consent to be bound by the Convention. Since the eighth session, the situation has improved as a result of the accession to the Agreement of Cameroon, Cuba, Kuwait and Mexico. As of 30 May 2003, there remain 29 members of the Authority which have not yet completed the necessary procedural steps to become parties to the Agreement. Those States are: Angola, Antigua and Barbuda, Bahrain, Bosnia and Herzegovina, Botswana, Brazil, Cape Verde, Comoros, Democratic Republic of the Congo, Djibouti, Dominica, Egypt, Gambia, Ghana, Guinea-Bissau, Guyana, Honduras, Iraq, Mali, Marshall Islands, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sao Tome and Principe, Somalia, Sudan, Uruguay, Viet Nam and Yemen.

5. In accordance with repeated requests by the Assembly, the Secretary-General has circulated annually a note verbale to the States parties mentioned above, drawing their attention to the need to become party to the Agreement. The last such note was circulated on 20 January 2003, in which the Secretary-General drew the attention of the States parties concerned to the relevant paragraphs of the report of the Secretary-General for 2002 and to paragraph 1 of United Nations General Assembly resolution 57/141 of 12 December 2002, calling upon all States that have not done so, in order to achieve the goal of universal participation, to become parties to the Convention and the Agreement.

III. Permanent representatives to the Authority

6. As at 30 May 2003, Argentina, Brazil, Cameroon, Chile, China, Costa Rica, Cuba, France, Gabon, Germany, Haiti, Italy, Jamaica, Mexico, the Netherlands, Saint Kitts and Nevis, South Africa and Trinidad and Tobago had established permanent missions to the Authority.

IV. Sessions of the Authority

7. The eighth session of the Authority was held from 5 to 16 August 2002. Martin Belinga-Eboutou (Cameroon) was elected President of the Assembly for the eighth session. Fernando Pardo Huerta (Chile) was elected President of the Council.

8. The work of the Assembly during the eighth session included a debate on the annual report of the Secretary-General, the adoption of the budget of the Authority for the financial period 2003-2004 and the election of one half of the members of the Council in accordance with article 161, paragraph 3, of the Convention.

9. The Council received the report of the Chairman of the Legal and Technical Commission on the work of the Commission during the eighth session. In taking note of the report, members of the Council also expressed their appreciation to the Commission for its decision to open its meetings relating to proposed regulations on polymetallic sulphides and cobalt-rich crusts to observers. The Council furthermore took note of the evaluation of the annual reports of contractors carried out by the Commission and noted the Commission's proposals to make its work more efficient at future sessions.

10. The Council also took up the matter of considerations relating to the regulations for prospecting and exploration for polymetallic sulphides and cobalt-rich crusts in the Area. This matter is further dealt with at paragraph 36 below.

V. Relations with the host country

11. During the eighth session, the Assembly expressed its concern over the long delay in completing a supplementary agreement concerning the headquarters of the Authority, but also took note of the information contained in an addendum to the report of the Secretary-General concerning recent progress that had been made towards resolving the outstanding issues with respect to the Agreement.[1] The Assembly urged the Secretary-General and the Government of Jamaica to continue their efforts to conclude an agreement as soon as possible. The Secretary-General undertook to report to the members of the Authority on progress with the supplementary agreement by October 2002.

12. Regrettably, although some progress has been made, the position as at May 2003 is that no supplementary agreement has yet been concluded. In October 2002, discussions at a technical level took place between officials of the Authority and officials of the Government of Jamaica. As a result of those discussions, it was possible to clarify a number of issues relating to the costs of maintaining the headquarters building, and the Authority submitted a proposal for the calculation of maintenance costs to the Government of Jamaica on 4 October 2002. In the interests of greater transparency, the Authority also agreed to discharge forthwith all arrears of electricity charges for the production of certified copies of the relevant bills and that it would in future pay utility bills for the premises occupied by it directly. No response to these proposals was received until February 2003, when certified copies of utility bills were produced. In March 2003, the Authority made a payment of J$ 2,040,127.79 in full settlement of electricity charges for its premises for the period from April 2001 to December 2002.

13. Unfortunately, no response has been forthcoming to the Authority's proposal for maintenance costs, nor has any further progress been made with respect to the issue of the cost to the Authority of the Jamaica Conference Centre as a venue for its meetings. Indeed, on 7 April 2003, without warning, the Government of Jamaica suspended air conditioning and janitorial services to the premises of the Authority, resulting in considerable disruption to the activities of the Authority, including the temporary closure of its offices. Services were not restored until 14 April.

14. The Secretary-General will report further to the Finance Committee during the ninth session with respect to the details of the outstanding issues with respect to the supplementary agreement.

VI. Protocol on Privileges and Immunities

15. The Protocol on the Privileges and Immunities of the International Seabed Authority, adopted by the Assembly at its 54th meeting, on 26 March 1998, was opened for signature in Kingston on 26 August 1998. In accordance with its article 16, the Protocol remained open for signature at United Nations Headquarters in New York until 16 August 2000. As at that date, the Protocol had been signed by 28 members of the Authority: Bahamas, Brazil, Chile, Côte d'Ivoire, Czech Republic, Egypt, Finland, Ghana, Greece, Indonesia, Italy, Jamaica, Kenya, Malta, Namibia, the Netherlands, Oman, Pakistan, Portugal, Saudi Arabia, Senegal, Slovakia, Spain, Sudan, the former Yugoslav Republic of Macedonia, Trinidad and Tobago, United Kingdom of Great Britain and Northern Ireland and Uruguay.

16. The Secretary-General is pleased to report that, on 1 May 2003, Nigeria became the tenth member of the Authority to ratify or accede to the Protocol. In accordance with its article 18, paragraph 1, the Protocol therefore entered into force on 31 May 2003. As at that date, the parties to the Protocol were Cameroon, Croatia, the Czech Republic, Egypt, Jamaica, the Netherlands, Nigeria, Slovakia, Spain and the United Kingdom. It is hoped that other members of the Authority will give consideration to early ratification of or accession to the Protocol. In this regard, it should be noted that the Protocol provides essential protection to representatives of members of the Authority who attend meetings of the Authority or who travel to or from those meetings.

VII. The secretariat

17. The secretariat is presently organized into four main functional areas: Office of the Secretary-General; Office of Administration and Management; Office of Legal Affairs; and Office of Resources and Environmental Monitoring. The approved establishment of the secretariat for 2003 was 37 posts, of which 34 were encumbered as at 30 May 2003. In 2003, the scientific and technical capacity of the secretariat was further enhanced with the recruitment of a specialized biologist to the post of Scientific Affairs Officer. As noted in previous reports of the Secretary-General, it remains difficult to attract candidates with appropriate qualifications and experience for posts in certain key technical areas. One of the main difficulties in attracting such staff relates to the lack of possibilities for employment of spouses in Jamaica. It may be noted that this issue has also been raised as a matter of general concern to the wider United Nations system by the Secretary-General of the United

Nations, who has recently called upon host Governments to give favourable consideration to permitting spouses of staff members to seek employment. The Secretary-General of the Authority intends to continue to pursue this matter with the Government of Jamaica.

18. As a result of certain difficulties encountered during 2002 and with a view to streamlining the organization of the secretariat, as a temporary measure, the Office of Administration and Management was absorbed into the Office of the Secretary-General during 2002. As noted in the report of the Secretary-General to the eighth session, one consequence of the increased scientific and technical emphasis in the work of the Authority is the need to consider how best to utilize available financial and human resources to meet the demands of the changing work programme. Effective performance of the substantive work programme described in the present report is likely to require a significant strengthening of the technical capabilities of the secretariat. At the same time, there may also be an opportunity for further streamlining in the administration. The Secretary-General intends, therefore, to undertake a comprehensive review of the current structure of the secretariat, including a review of the job descriptions and classifications of existing established posts, with a view to securing greater efficiency in the allocation of resources. Any changes that may be required to the present establishment would be taken up in the budget proposal for the next financial period.

VIII. Budget and finance

A. Budget

19. Following a review of the Secretary-General's proposed budget by the Finance Committee and the decision and recommendation of the Council in relation to the budget,[2] the Assembly adopted the budget of the Authority for the financial period 2003-2004 in the sum of US$ 10,509,700 (compared to $10,506,400 for the period 2001-2002). This represents minimal change in nominal terms and a reduction in real terms in comparison with the previous financial period. Changes of note within the budget included the creation of the objects "Promotion and encouragement of the conduct of marine scientific research" as well as a significant reduction in the amounts provided for conference servicing (- $461,900) and acquisition of furniture and equipment (- $103,800). The budget allocation for information technology (formally classified as data-processing services) was increased by $136,400 to provide for necessary software upgrades and licences.

20. The Authority was also able to make a substantial downward adjustment to the amount of the net assessed contributions required to finance the budget by the application of $2,600,000 from accumulated surplus from previous years. This was made possible, in large measure, by the payment of outstanding contributions by the United States of America, as well as by savings on previous obligations. The audited accounts of the Authority for the financial period 2001-2002 were provided separately to the Finance Committee and showed a relatively small surplus that averaged only 3.4 per cent of income for each year of the budget period.

B. Status of contributions

21. In accordance with the Convention and the Agreement, the administrative expenses of the Authority shall be met by assessed contributions of its members until the Authority has sufficient funds from other sources to meet those expenses. The scale of assessments shall be based upon the scale used for the regular budget of the United Nations, adjusted for differences in membership. As at 31 May 2003, contributions to the 2003 budget had been received in full from 38 States and the European Community. The total amount of net assessed contributions received as at that date was $2,860,867, which represents 72 per cent of the net contributions requested. The Working Capital Fund as at 31 May 2003 stood at $423,129 (97 per cent of the total).

22. In respect of previous financial periods (from 1998 to 2002), contributions of $630,801 remained outstanding from 68 members of the Authority as at 31 May 2003. In accordance with article 184 of the Convention and rule 80 of the Rules of Procedure of the Assembly, a member of the Authority which is in arrears in the payment of its financial contribution to the Authority shall have no vote if the amount of its arrears equals or exceeds the amount of financial contribution due from it for the preceding two years. As at 31 May 2003, 49 members of the Authority were in arrears for a period exceeding two years. They were: Antigua and Barbuda, Argentina, Bahrain, Benin, Bolivia, Cape Verde, Comoros, Cuba, Democratic Republic of the Congo, Djibouti, Dominica, Equatorial Guinea, Gabon, Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Haiti, Honduras, Iraq, Kenya, Mali, Mauritania, Myanmar, Nicaragua, Panama, Paraguay, Saint Kitts and Nevis, Sao Tome and Principe, Senegal, Seychelles, Solomon Islands, Somalia, Suriname, the former Yugoslav Republic of Macedonia, Togo, Tonga, Tunisia, Uganda, Ukraine, Uruguay, Vanuatu, Yemen, Yugoslavia, Zambia and Zimbabwe.

C. Voluntary trust fund

23. One of the matters taken up by the Council during the eighth session was the question of modalities for financing the participation of members of the Legal and Technical Commission in meetings of the Commission. The Council considered the matter on the basis of a working paper prepared by the Secretariat, noting that, because of the budgetary and financial implications, the matter would also need to be considered by the Finance Committee.[3]

24. Acting on the recommendation of the Council, the Assembly requested the Secretary-General to establish, as an interim measure, a voluntary trust fund for the purpose of defraying the cost of participation of members of the Legal and Technical Commission from developing countries and the members of the Finance Committee from developing countries in the meetings of the Commission and of the Committee and requested the Finance Committee to consider the matter further at its next session, including the possibility of making provision from the administrative budget.[4] The Secretary-General is pleased to report that such a voluntary trust fund has been established and that three separate donations, totalling $10,500, have been made to the fund.

IX. Library and publications

25. The library manages the Authority's specialized collection of reference and research materials on matters relating to the law of the sea and deep seabed mining. The library serves the needs of member States, permanent missions and researchers interested in the law of the sea and ocean affairs. It also provides essential reference and research assistance to the staff of the secretariat. In addition, as part of the Office of Legal Affairs, the library is responsible for the archiving and distribution of the official documents of the Authority and assists with the publications programme. During the period under review, the library continued to handle requests from staff members and external users for information and documents. Many of the requests received were for information on the work, history and development of the Authority. Requests were also made for information on polymetallic sulphides, arrangements between the Authority and exploration contractors and on issues related to seabed mining and offshore development programmes, including information on the future potential and the environmental consequences of such activities, and the biodiversity of the deep ocean. Many requests received related to the Authority's publications and official documents. In some cases, requests for assistance could be satisfied through referral to the Authority's web site, where most of its official documents are available in electronic format.

26. The library continued to pursue its ongoing acquisitions programme with a view to building a comprehensive collection of reference materials and strengthening the specialized research capability of the existing collection. During the reporting period, approximately 300 books, CD-ROMs and journals were acquired. A number of items were acquired through personal donations and from institutions and libraries, including the United States National Oceanic and Atmospheric Administration, the United States Department of State and the United Nations Division for Ocean Affairs and the Law of the Sea. The Secretary-General expresses his appreciation to all donors for their valuable contributions to the library. In order to meet its key objective of providing ready access to information, the library continued to develop its electronic cataloguing system. The electronic catalogue is available to all staff members and has been available to delegates attending sessions of the Authority since 2001. The catalogue will eventually be accessible online as an integral part of the Authority's central data repository.

27. One of the important long-term projects the library has been working on is the systematic preservation and archiving of the original documents of the Sea-Bed Committee, UNCLOS III and the Preparatory Commission. In 1999, the library engaged the services of a specialist conservation librarian to conduct a thorough review and analysis of the preservation needs of the library with respect to these documents. Since then, the recommendations made by the consultant have been progressively implemented. In the first instance, this entailed preservation of the original documents, some of which are badly deteriorated, through copying onto acid-free archival paper and their subsequent binding. These bound volumes are now available in the library. Duplicate sets of all of these volumes were also donated to the library of the International Tribunal for the Law of the Sea. The next stage of the project, which began in April 2003, will be to transfer more than 20,000 pages of the documents to electronic mass storage media. It is expected that by September 2003, the Authority will be in a position to release a set of fully indexed and searchable

CD-ROMs containing all documents in all official languages. The documents will also be made available online.

28. The regular publications of the Authority include an annual compendium of selected decisions and documents of the Authority (published in English, French and Spanish) and a Handbook, containing details of the membership of the Assembly and the Council, the names and addresses of permanent representatives and the names of the members of the Legal and Technical Commission and the Finance Committee. The Authority has also established a programme of legal and technical publications on matters of relevance to its work. Most of these publications contain important historical material which has not been published elsewhere. In 2002, the Authority published a legislative history of article 170 and Annex IV of the Convention.[5] In 2003, it is intended to publish a volume containing the basic organizational texts of the Authority. With regard to its technical publications, the Authority has to date published the proceedings of its workshops as well as technical studies on the prospects as at 2000 for global non-living resources on the extended continental shelf[6] and on the status of polymetallic sulphides and cobalt-rich ferromanganese crusts.[7] A complete listing of all current publications issued by the Authority may also be found on the Authority's web site.

29. The Authority's web site (www.isa.org.jm) contains essential information about the Authority primarily in English, French and Spanish. The texts of all the official documents and decisions of the organs of the Authority are available on the web site in all six official languages. Press releases are available in English and French. Official documents and press releases are available in a downloadable format to afford ready access by members of the Authority. In terms of public information, the Authority has also produced in 2003 a new series of brochures, in all six official languages, explaining various aspects of the work of the Authority. Dynamic and interactive versions of these brochures are accessible through the web site.

X. Substantive work of the Authority

30. The substantive work programme of the Authority is largely determined by the provisions of the Convention and the Agreement, and in particular section 1, paragraph 5, of the annex to the Agreement, which lists the items that the Authority must concentrate on between the entry into force of the Convention and the approval of the first plan of work for exploitation. To give effect to the provisions of the Agreement, the substantive work of the Authority is currently focused in five main areas:

(a) The supervisory functions of the Authority with respect to existing contracts for exploration for polymetallic nodules;

(b) The development of an appropriate regulatory framework for the future development of the mineral resources of the Area, particularly hydrothermal polymetallic sulphides and cobalt-rich crusts, including standards for the protection and preservation of the marine environment;

(c) The promotion and encouragement of marine scientific research in the Area and coordination and dissemination of the results of such research and analysis;

(d) Information-gathering and the establishment and development of databases of scientific and technical information with a view to obtaining a better understanding of the deep ocean environment;

(e) Ongoing assessment of available data relating to prospecting and exploration.

A. Contracts for exploration

31. It will be recalled that, during 2001, the Authority entered into the first 15-year contracts for exploration of areas of the deep seabed with the seven former registered pioneer investors. The contractors are: China Ocean Mineral Resources Research and Development Association (COMRA) (China), Deep Ocean Resources Development Company (DORD) (Japan), Institut français de recherche pour l'exploitation de la mer/l'Association française pour l'étude et la recherche des nodules (IFREMER/AFERNOD) (France), Interoceanmetal Joint Organization (IOM) (a consortium formed by Bulgaria, Cuba, the Czech Republic, Poland, the Russian Federation and Slovakia), Yuzhmorgeologiya (Russian Federation), Republic of Korea, and India.[8]

32. One of the consequences of the existence of such a contractual relationship is the obligation on contractors to submit annual reports in accordance with the provisions of the contract. In this regard, the standard clauses set out in annex 4 to the Regulations for Prospecting and Exploration for Polymetallic Nodules in the Area contain detailed provisions relating to the format and content of such annual reports.[9] The objective of these reporting requirements is to establish a mechanism whereby the Authority, and particularly the Legal and Technical Commission, can be provided with the information necessary to carry out its responsibilities under the Convention, particularly those relating to the protection of the marine environment from the harmful effects of activities in the Area. Additional guidance to contractors in preparing their annual reports has been provided in the form of the recommendations for the guidance of contractors issued by the Legal and Technical Commission in 2001.[10] The purpose of the recommendations for guidance is to describe the procedures to be followed in the acquisition of baseline data by contractors, including the monitoring to be performed during or after any activities having the potential to cause serious harm to the environment, and to facilitate reporting by contractors.

33. At its meeting during the eighth session, the Legal and Technical Commission evaluated the first set of annual reports submitted by contractors pursuant to the Regulations. The Commission acknowledged the efforts made by the contractors to produce their first annual reports and the significant improvement of those reports over the periodic reports submitted during the pioneer investor regime. However, it also noted that there were a number of elements missing from some of the reports and therefore made specific recommendations for the submission of additional data and information by the contractors concerned in relation to those elements.[11] In addition the Commission adopted a recommended format and structure for annual reports, including a standardized contents list.[12] The Secretary-General subsequently conveyed the recommendations of the Commission to the contractors concerned and will report, during the ninth session, to the Commission on the status of the additional data and information received. Moreover, at the request of the contractors

concerned, minor adjustments were made to the programme of activities under the contract through exchanges of letters with IOM and Yuzhmorgeologiya.

34. The second set of annual reports by contractors were due to be received at the end of March 2003. As of 10 June 2003, annual reports had been received from DORD, IOM, India, Yuzhmorgeologiya and the Republic of Korea.

B. Prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts in the Area

35. It will be recalled that, at the resumed fourth session of the Authority, in August 1998, the representative of the Russian Federation had made a request to the Authority to adopt rules, regulations and procedures for exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts.[13] In the light of the request to the Authority by the Russian Federation, the Secretariat in 1999 produced a preliminary review of the status of knowledge and research on those resources and in June 2000 convened an international workshop on the status of and prospects for deep seabed mineral resources other than polymetallic nodules, in particular deep sea polymetallic massive sulphide deposits and cobalt-rich ferromanganese crusts. During the seventh session of the Authority, in 2001, the Secretary-General introduced to the Council a paper prepared by the Secretariat on considerations relating to regulations for prospecting and exploration for polymetallic sulphides and cobalt-rich crusts in the Area.[14] Following extensive discussions, the Council decided to continue consideration of the paper at the eighth session in 2002.

36. During the eighth session, to better inform members of the Authority, the Secretariat also organized a seminar consisting of presentations by leading scientific and technical experts on the status, characteristics and prospects for deep sea polymetallic sulphides and cobalt-rich crusts as well as the marine environment where these minerals are located.[15] The Council then held informal meetings on 12, 14 and 15 August 2002 to discuss further the issues raised in the Secretariat's paper in the light of the seminar and in the light of the parallel consideration of the matter by the Legal and Technical Commission. While noting that the Commission had only just begun its consideration of the proposed regulations, the Council recommended a flexible approach to the formulation of regulations, particularly in view of the lack of scientific knowledge relating to deep sea ecosystems. At the same time, it was noted that any regulations must be consistent with the overall scheme contained in the Convention, the Agreement and the existing regulations relating to polymetallic nodules. From the point of view of potential investors, the most difficult issues would be how to determine the size of the area for exploration so as to make exploration commercially viable while avoiding monopoly situations. The system for the Area also had to be competitive with regimes established for areas within national jurisdiction. The Council decided to keep the matter under consideration at the ninth session, in parallel with the formulation of draft regulations by the Legal and Technical Commission.

37. Also during the eighth session, the Legal and Technical Commission began its consideration of the issues relating to an appropriate regulatory framework for these resources in parallel with the Council. Discussions on this issue in the Commission were held in open session, in order to allow members of the Authority the opportunity to follow the debate. In its preliminary discussion of the approaches

suggested in the Secretariat's paper, the Commission emphasized the need to proceed cautiously and in a logical manner towards the development of regulations. It was emphasized that, bearing in mind the uncertainties associated with activities in the Area, any scheme for prospecting and exploration should be subject to review after an initial period. While prospecting and exploration should be encouraged and potential prospectors should therefore be provided with rights over particular areas and priority to apply for exploration contracts, there was also a need to ensure that the Authority received adequate data and information, particularly with regard to the protection and preservation of the marine environment. The Authority would also need to take into account the particularly sensitive nature of the sites where such resources occur, and any regulatory framework would need to contain provisions relating to the collection of baseline data and information on the biological characteristics of areas under exploration, as well as procedures for environmental impact assessment.

38. The Commission will continue its work on a regulatory framework at its meeting during the ninth session. Among the issues associated with the regulations that will be taken up by the Commission are the issues of a progressive fee system rather than a relinquishment system, further consideration of the grid system for licensing, and continued development and elaboration of the parallel system as it applies to these resources.

C. Promotion and encouragement of marine scientific research in the Area

39. One of the most important functions of the Authority is to promote and encourage the conduct of marine scientific research in the Area, and to coordinate and disseminate the results of such research and analysis. Under article 256 of the Convention, all States and competent international organizations have the right to conduct marine scientific research in the Area. However, unlike the situation in other jurisdictional zones (including the high seas), marine scientific research in the Area is to be carried out "for the benefit of mankind as a whole".[16] Paragraphs 2 and 3 of article 143 elaborate upon the respective roles of the Authority and States parties in relation to marine scientific research in the Area. In accordance with article 143, paragraph 2, the Authority is to "promote and encourage the conduct of marine scientific research in the Area, and shall coordinate and disseminate the results of such research and analysis when available". In accordance with paragraph 3, States parties shall promote international cooperation in marine scientific research in the Area, including by participating in international programmes and by ensuring that programmes are developed through the Authority or other international organizations for the benefit of developing States and technologically less developed States with a view, inter alia, to strengthening their research capabilities.

40. The most immediate and practical way in which the Authority has begun to implement its responsibilities under the Convention is through its programme of technical workshops. Since 1998, the Authority has established a pattern of workshops and seminars on specific issues related to deep seabed mining, with participation by internationally recognized scientists, experts, researchers and members of the Legal and Technical Commission as well as representatives of contractors, the offshore mining industry and member States. Previous workshops dealt with the assessment of environmental impacts from activities in the Area, the

development of technology for deep seabed mining, the status and prospects of deep sea mineral resources other than polymetallic nodules, standardization of techniques for data collection and analysis, and prospects for international collaboration in marine environmental research to enhance understanding of the deep sea environment, including its biodiversity.

41. As a direct result of the discussions in these workshops and to further the scientific understanding of the biological environment of the mining area in the Clarion-Clipperton Fracture Zone (CCZ), the Authority is currently collaborating in a research project coordinated through the University of Hawaii to study the biodiversity, species range and gene flow in the abyssal Pacific nodule province with a view to predicting and managing the impacts of deep seabed mining. Other institutions participating in the project include the British Natural History Museum, the Southampton Oceanography Centre (United Kingdom), JAMSTEC (Japan) and IFREMER (France). The project is referred to as the Kaplan project because of its main funding source, the J. M. Kaplan Fund.[17] The aims of the project derive from the first workshop convened by the Authority on the development of environmental guidelines for the assessment of the environmental impacts from the exploration for polymetallic nodule deposits in the Area. That workshop had identified a number of critical factors that needed to be ascertained or established for the purpose of managing deep-seabed polymetallic nodule mining in such a way as to prevent serious harm to the marine environment, namely:

(a) The dose-response function or the relationship between the impact on the faunal community at the seabed and the amount of sediment dropped on it;

(b) The chronic disturbance effect or the frequency with which a plume can be produced in an area to yield sedimentation without causing a negative impact on the ecosystem;

(c) The spatial scale sensitivity of the recovery process;

(d) The latitudinal and longitudinal ranges of the benthic species living within nodule provinces of the CCZ;

(e) Standardization of species collection to enable the Authority and the international community to find out if the same species are being found in the different potential nodule mining areas of the CCZ.

42. To address some of these factors, the Kaplan project focuses on:

(a) Determining the number of polychaete, nematode and foraminiferal species at a number of stations in the CCZ using modern molecular methods that can facilitate standardization among scientists, prospectors and contractors;

(b) Using state-of-the-art molecular and morphological techniques to evaluate levels of species overlap and rates of gene flow for key components of the polychaete, nematode and foraminiferal fauna.

43. The first Kaplan cruise took place from 4 February to 8 March 2003, at an investigation area at the eastern limits of the nodule zone in the CCZ whose size is approximately 100 km^2 centred on 14° N, 119° W. During the cruise samples were collected for macro fauna, nematodes, foraminifera, other meiofauna and bacteria. Preservation occurred such that both DNA-based and more traditional morphological studies could be carried out. DNA-based investigations are required

as they are quicker and cheaper than traditional techniques, they allow for more accurate comparison between studies and are the only accurate way to measure gene flow. The samples have now been distributed to the participating institutions for analysis. The next stage of sampling will occur when scientists from the Kaplan project participate in cruises arranged by contractors and other institutions, or when contractors make samples available to scientists involved in the project. In this collaborative effort, contractors provide berth space for Kaplan scientists or take samples using the methods outlined by Kaplan scientists and make the samples available to these scientists in return for the training required in molecular techniques that will ultimately yield standardization. The first of the cruises by contractors that will make samples available to Kaplan scientists may take place in the summer of 2003. The first cruise in which Kaplan scientists will participate will be a Japanese cruise scheduled for February 2004. Kaplan scientists also hope to participate in cruises organized by IFREMER (France), COMRA (China) and possibly the Republic of Korea in 2004.

44. Reports will be made available to the Authority at yearly intervals during the project, with a final report containing a CD-ROM that has the detailed information concerning the biodiversity and gene flow within the CCZ (raw data, analysis and recommendations). The results will also be published in peer-reviewed scientific literature.

45. The Authority has supported the project in order to, inter alia, ensure that samples collected are suitable for DNA analysis, obtain the fundamental information required to develop a scientifically rigorous database on the biodiversity in this potential polymetallic nodule mining area, including information on the level of species overlap and rates of gene flow, and to promote the standardization required for future decisions in respect of the protection and preservation of the marine environment from the mining of deep seabed polymetallic nodule deposits.

D. Information and data relating to the international seabed area

46. Data and information on marine mineral resources are dispersed within various organizations, companies and entities worldwide. They are held in various formats, having been collected according to different standards, and are usually not readily accessible to potential users. To address this situation, the secretariat in 2000 began to establish a database, known as the Central Data Repository (CDR). The objective of the CDR is to collect and centralize all public and private data and information on marine mineral resources and their associated biodiversity. This database is to be available to all interested parties through the Internet. It is to contain summaries of resource potential for areas where data are sufficient. Work to establish the CDR has advanced in relation to geologic data on polymetallic nodules, polymetallic sulphides and ferromanganese crusts in the Area. The Authority has also created uniform data formats for data entry.

47. The first step in the process of establishing the CDR was to determine the format and availability of relevant data within 18 institutions worldwide. The next step was to decide on a common format for data on the three types of mineral deposits, the database structure and appropriate web interfaces. In 2001, the secretariat started the collection of data and information related to polymetallic nodules and ferromanganese crusts. Late in 2002, the secretariat acquired from the

Geological Survey of Canada a validated set of data on the worldwide distribution of seafloor polymetallic sulphides, including geochemical analyses for 2,640 samples of seafloor polymetallic sulphides and related hydrothermal precipitates from 69 different sites worldwide. Those data were integrated into the CDR during the first quarter of 2003. As at May 2003, data and information on marine mineral resources have been obtained from 3 of the 18 institutions identified, including, in addition to the Geological Survey of Canada, the United States Geological Survey and the National Oceanic and Atmospheric Administration. During 2004 and 2005, it is intended to complete the data acquisition process. During this time, the secretariat will also continue to develop visual data analysis tools for use over the Internet.

48. The CDR may be accessed via links from the Authority's web site or directly at www.cdr.isa.org.jm. The CDR is divided into three main databases: polymetallic nodule samples data, cobalt-bearing ferromanganese crust samples data, and a seabed patents database. A background summary and related documentation associated with each resource type is available online, providing an understanding of the overall analysis performed by the various expert consultants involved in the project.

49. The CDR is also to be developed to facilitate the dissemination of the results of marine scientific research relevant to the future commercialization of polymetallic nodule deposits, cobalt-rich ferromanganese crusts and gas hydrates. Web pages will provide members of the Authority, the scientific community, prospectors and potential future applicants for plans of work for exploration with relevant information on scientific research and prospecting related to marine mineral resources, including:

(a) Types of deposits, their location, the metal content of the minerals that they contain and baseline environmental conditions (including associated biota);

(b) A bibliographic database and recommendations for general reading;

(c) A synthesis of research carried out on each of the components;

(d) Lists of related projects and associated researchers;

(e) Links to other institutions working on related subjects.

While it is not the responsibility of the Authority to develop deep sea oceanography, the creation of web sites and databases could be a unique source of information on the abyssal environment representing a giant leap forward in understanding deep-sea processes. It would also lead to greater collaboration between contractors and scientists, as well as within the scientific community, to the benefit of mankind.

50. As another product for the dissemination of information, the Authority plans to assemble a digital atlas containing maps and charts at different scales, which will include the following global and regional information relating to the Area:

(a) Natural and political boundaries of and inside the Area, including the location of known exclusive economic zone and continental shelf boundaries;

(b) Geological features and provinces, including major structures;

(c) Bathymetry and general seafloor relief;

(d) Location of all known mineral resources, including placers, phosphorites, evaporates, polymetallic sulphides, manganese nodules, hydrocarbons and methane hydrate deposits.

51. For each of the above-mentioned mineral resources, three categories of information will be mapped. The first concerns the locations of known and proven deposits, the second is related to the location of areas of potential occurrence of minerals and the third is connected to the areas where analysed samples are available in the public domain and easily accessible via the Internet. The aim of the project is to develop a web-accessible database containing all the available cartographic information with the appropriate geographical information system, which will be able to receive and display information in different formats.

52. The digital atlas is planned to be carried out in cooperation with the International Hydrographic Organization and the United Nations Cartographic Section. The first phase of elaboration of the project is scheduled to start in the second half of 2003 and continue through 2004. It will include the collection of the necessary information and design of the format for the atlas.

E. Resource assessment and geologic model for the Clarion-Clipperton Fracture Zone

53. One of the most important functions of the Authority in the period prior to the approval of the first plan of work for exploitation is the assessment of available data relating to prospecting and exploration. In this regard, the Authority is specifically required to carry out an evaluation of available data and information relating to the areas reserved for eventual use by the Authority. Initial work on resource assessment, including a review and critical evaluation of available data, began in 1998, as a result of which the Authority was able to identify a number of discrepancies and missing elements in those data, most of which was provided by the pioneer investors upon registration. To carry this work further, the Authority, in January 2003, convened an expert group of scientists to draw up a preliminary proposal for the establishment of a geological model for the CCZ.

54. A strategy and work programme for the model was further developed during a workshop held from 13 to 20 May 2003 in Nadi, Fiji, organized by the Authority in collaboration with the South Pacific Applied Geosciences Commission. The Fiji workshop brought together more than 35 internationally renowned experts from around the world to review the outcomes of the meeting of scientists and to establish a strategy for the development, over a four-year period, of a geological model. The full proceedings and recommendations of the workshop will be published in due course. A summary of the workshop outcomes is available on the Authority's web site.

55. The objective of the programme, as recommended by the Fiji workshop, is to establish a geological model for the CCZ that can be used for quantitative purposes (resource assessments) and a predictive model that enables the Authority to identify poorly sampled seabed areas with the CCZ that could contain high-grade and high-abundance nodule deposits. The predictive aspect of the model would be developed using apparent relationships that have been observed between parameters such as the sediment-water interface, biological productivity and the carbonate compensation depth with high-grade, high-abundance nodule deposits. In parallel with the model,

the workshop recommended the development of a prospector's guide, documenting the data contained in the model and including a narrative of the steps taken to validate proxy data. Such a guide would take advantage of the enormous experience of project participants and provide a framework for the integration of qualitative, experience-based information in the model.

56. Among the other tangible benefits of the project for the Authority and its members are that the model would provide an authoritative summary of resource and indicator variables for relative evaluation of existing claims and guidance for selection of new claims. It would also provide a mechanism for improving resource assessment with new data acquisition and a key framework for delineating biological habitats. While primarily applicable to the CCZ, the lessons and techniques learned from the development of the model could also be applied to nodule formulation elsewhere in the Pacific and in other oceans, in both international waters and in waters under the jurisdiction of coastal States.

57. The outcomes of the Fiji workshop will be presented to the Legal and Technical Commission during the ninth session. The secretariat will then develop an appropriate implementation strategy, including estimated budgetary requirements, and will start the identification, acquisition and processing of necessary data and information.

XI. Future directions

58. Prospects for the development of seabed mineral resources continue to be doubtful. At the same time, however, it is apparent that existing knowledge about the deep ocean environment, and especially the potential consequences of mining activity is highly uncertain. In these circumstances, the most constructive and useful work the Authority can do at the present time is to develop its capacity as a depositary of available data and information about the mineral resources of the Area and to promote and encourage new research on those resources and on the deep ocean environment in general. This will assist the Authority in its efforts to administer the Area and its resources.

59. The main priority for the Authority in the immediate future is the development of a regulatory regime for polymetallic sulphides and cobalt-rich crusts. While discussions in the Legal and Technical Commission are ongoing, it is apparent from the discussions to date that a cautious approach to regulation is warranted. Until scientific knowledge improves, and especially knowledge of the potential environmental consequences of mining, there is little justification for the adoption of a comprehensive regulatory code. The objective should be to progressively develop a regulatory regime as prospecting and exploration activities take place and better knowledge of the resources and the environment in which they occur is gained. Strong emphasis should be placed on the need to gather environmental data and information according to standardized methodologies and formats, and on the analysis of such data.

60. Among other current issues that the Authority will need to consider are the future implementation of article 82, paragraph 4, of the Convention and the question of the protection of biodiversity in the Area.

61. Article 82, paragraph 4, of the Convention provides for a system of revenue-sharing with respect to the exploitation of the non-living resources of the continental shelf where the shelf extends beyond 200 nautical miles from the baseline. The article provides that coastal States are to make payments or contributions in kind in respect of the exploitation of such resources and sets out the modalities for such payments or contributions. Any such payments or contributions are to be made through the Authority and distributed to States parties to the Convention in accordance with the criteria set out in article 82, paragraph 4. Although, according to current knowledge, the offshore resources in potential continental shelf areas beyond 200 nautical miles are sub-marginal to para-marginal, technological improvements in recovery efficiency and greater access to deep-water areas are already increasing the range of economically recoverable resources and there is considerable potential for exploitation of these resources in the future. At least two States have issued exploration licences in such areas. The Authority will carry out the necessary studies and will prepare a technical report on the development of the deep seabed resource exploration and prospects for future exploitation on the continental shelf. The results are expected to provide more precise information on likely future activities on the basis of which the Authority can begin to address issues relating to the implementation of article 82, paragraph 4, of the Convention, including the development of equitable sharing criteria and modalities for the distribution of revenue.

62. The report of the Secretary-General to the eighth session briefly reviewed some recent international developments relating to the preservation and management of biodiversity in the Area, noting that, with respect to hydrothermal vents, this issue was a matter of direct concern of the Authority. Since then, as a result of a joint study prepared by the Division of Ocean Affairs and the Law of the Sea of the United Nations and the secretariat for the Convention on Biological Diversity,[18] the Authority was invited to cooperate with the Division and other relevant international organizations in a review of issues relating to the conservation and sustainable use of the genetic resources of the deep seabed beyond the limits of national jurisdiction with a view to making appropriate recommendations to the General Assembly in due course.

63. Important preliminary steps in such a review would be to identify and assess such genetic resources and then to identify potential threats. The most immediate current threat appears to be the work being carried out around active hydrothermal vents, which may include bioprospecting carried out as part of marine scientific research. Insofar as such activities are concerned, it is likely that any regulatory regime developed by the Authority for mineral resources such as polymetallic sulphides would contain measures aimed at protecting biodiversity and the marine environment in general from harmful effects. It is expected that the results of the Authority's participation in the Kaplan project (see para. 41 above) would be particularly important in guiding the Authority in the establishment of the necessary measures. The Authority would also be able to obtain valuable practical guidance from ongoing international initiatives such as the draft code of conduct for sustainable use of hydrothermal vent sites under development by InterRidge[19] and the voluntary Code for Environmental Management of Marine Mining adopted by the International Marine Minerals Society. Indeed, most of the scientists currently engaged in research in this area have also participated in the Authority's workshops. The Authority will not only benefit from close collaboration with those who are

already conducting scientific research on hydrothermal vents, but also has the potential to provide a central clearing house for exchange of information about research activities on hydrothermal vent sites and at the same time a forum for the discussion and development of principles for the better implementation of the existing legal regime for marine scientific research in the Area and the management of biodiversity in the Area.

64. As noted in the Secretary-General's report to the eighth session, one of the key practical questions that arises in the context of research on the genetic resources of the deep ocean is how to ensure the fair and equitable distribution of the benefits from marine scientific research relating to such resources without creating unreasonable obstacles to activities such as, for example, commercial biotechnological development and without limiting unreasonably commercial incentives, such as intellectual property rights, for work undertaken on the genetic resources of the Area. In this regard, the practicality of the situation is such that it is hard, if not impossible, to distinguish between scientific exploration and commercial research. Deep ocean scientific research is expensive. It also relies on advanced technology both for the recovery of samples and their analysis. Few States are in a position to carry out such work. Any scientific data in the public domain could potentially be used for commercial gain. The essential issue would appear to be to develop a system of effective monitoring and enforcement, including, for example, basic protocols on how samples are initially taken, similar to those used for other biological research. Such procedures and practices, if applied, would ensure that the impact of bioprospecting on the marine environment would be no different from that of general scientific research. Marine scientific research will inevitably have some impact on the marine environment and it makes no difference to the environment whether the ultimate destination for samples taken is a bioprospecting company or a scientific research institute. While it is possible to attempt to reduce the impact, it is impossible to measure the impact scientific research has on the marine environment, as to do so would itself require scientific research.

XII. Conclusion

65. Nine years after the establishment of the Authority, it is apparent that the work programme of the Authority has become substantially scientific and technical in nature. One consequence of this will be the need to consider how best to utilize the available financial and human resources to meet the demands of the changing work programme. To facilitate this, the Secretary-General has begun to develop a comprehensive three-year work plan for the secretariat, which would also incorporate a review of existing staff positions and job descriptions as well as details of the budgetary implications of planned programmes. The objective would be to present the work plan to the tenth session of the Authority for its consideration.

66. An essential element of the work plan would be to strengthen the technical expertise of the secretariat. In this regard, technical staff will be provided with training in geographic information systems, and web and geostatistical software applications. This training will include short visits and exchanges with staff from related technical and scientific organizations that undertake similar activities. The technical expertise of the secretariat will also be promoted by participation of technical staff in international meetings, conferences and workshops relevant to the

technical activities of the Authority. The objective of these activities would be to ensure that the secretariat consists of the scientific and technical professionals qualified to the highest standards.

67. At the same time, the Secretary-General will keep under review the pattern of meetings of the Authority to ensure that it meets the requirements of the various organs and bodies involved and to see whether it represents the most efficient mechanism for carrying out the necessary technical work. At the eighth session, following a discussion on the need to secure broad participation in meetings of the Assembly, the Secretary-General was requested to organize the meetings of the various organs of the Authority in the most efficient manner according to the proposed work plan for each session and taking into account the need for flexibility and the existing organic links between the various organs and bodies of the Authority. Those considerations were taken into account in planning the meetings for the present session, but need to be kept under review in the light of the continuing difficulties encountered in securing the required quorum of member States for meetings of the Assembly in Kingston.

Notes

[1] A detailed account of the issues relating to the supplementary agreement was contained in the report of the Secretary-General for 2002, ISBA/8/A/5 and Add.1.

[2] ISBA/6/C/7.

[3] ISBA/8/C/4.

[4] ISBA/8/A/11.

[5] Legislative history of the "Enterprise" under the United Nations Convention on the Law of the Sea and Agreement relating to Part XI of the Convention, International Seabed Authority, 2002.

[6] ISA Technical Study No. 1. Global Non-Living Resources on the Extended Continental Shelf: Prospects at the Year 2000, International Seabed Authority, 2001.

[7] ISA Technical Study No. 2, Polymetallic Massive Sulphides and Cobalt-rich Ferromanganese Crusts: Status and Prospects, International Seabed Authority, 2002.

[8] The contract with India was signed in March 2002.

[9] ISBA/6/A/18, annex (annex 4, sect. 10).

[10] ISBA/7/LTC/1/Rev.1.

[11] ISBA/8/LTC/2.

[12] Ibid., annex.

[13] See ISBA/4/A/18, para. 14.

[14] ISBA/7/C/2.

[15] The papers presented during the seminar have been published as ISA Technical Study No. 2 (see note 6 above). A summary of the papers was issued under symbol ISBA/8/A/1.

[16] Convention, article 143, para. 1.

[17] The J. M. Kaplan Fund is a family foundation based in New York that supports, inter alia, worldwide projects to protect the global commons.

[18] The study was presented to and discussed by the eighth meeting of the Convention on Biological Diversity Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-8) at

Montreal from 10 to 14 March 2003 as UNEP/CBD/SBSTTA/8/9/Add.3/Rev.1 and UNEP/CBD/SBSTTA/8/INF.3/Rev.1.

[19] InterRidge is an international scientific initiative concerned with facilitating international and multidisciplinary research associated with mid-ocean ridges. Members include Canada, France, Germany, India, Italy, Japan, Norway, Portugal, the United Kingdom and the United States. See http://triton.ori.u-tokyo.ac.jp/~intridge/.